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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/921,921

08/06/2001

Masayuki Endo

740819-595

8577

22204

7590

12/06/2005

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EXAMINER

NGUYEN, LAM S

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/921,921

Applicant(s)

ENDO ET AL. 

Examiner

LAM S. NGUYEN

Art Unit

2853

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-18 and 22-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-18 and 22-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 11, 13, 15, 17, 18, 22, 24-26, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshihiko (JP 07153662) in view of Kunz et al. (*Outgassing of organic vapors from 193nm photoresists: Impact on atmospheric purity near the lens optics*).

Toshihiko discloses an electron beam aligner comprising:

an exposure chamber (*FIG. 1, element 7*);

a substrate holder (*FIG. 1, element 8*) placed in a lower side of said exposure chamber under vacuum (*Abstract: High-vacuum-degree chamber*);

a substrate having a resist film (*FIG. 1, element 9*), placed on said substrate holder;

an electron beam source placed at an upper side of said exposure chamber (*FIG. 1, element 3*); and

a collection unit connected to said exposure chamber (*FIG. 1, element 10 or 7A*).

Toshihiko teaches the collection unit for collecting/absorbing, measuring, and analyzing the out gas (*paragraph [0022]*), but is silent wherein the outgas is released from said resist film when said resist film is fully irradiated with said electron beam, wherein said analysis unit has a

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gas chromatograph mass spectrometer (**Referring to claims 15, 18, 24, 28**), and wherein said outgas includes isobutene (**Referring to claims 25, 29**).

Kunz et al. discloses a process of collecting an isobutene outgassing vappored/released from irradiating photoresist that is a sample coated with a resist and loaded into an exposure chamber, wherein after the full irradiation (*Page 3330, right column, second paragraph: The sample is irradiated to an exposure dose equal to the resist's sizing dose (irradiation with a full dose)*), a volume of gas is removed from the chamber for further monitoring/analyzing using a mass-flow controller such as a gas chromatograph mass spectrometer (GCMS) (*Introduction paragraph: Organic vapor outgassing after exposure is tested. Page 3330, right column, second paragraph: After exposure, the volume of gas removed from the chamber and collected in a monitoring unit*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the process/device disclosed by Toshihiko to further monitoring or analyzing the outgas released from said resist film when said resist film is irradiated as disclosed by Kunz et al. The motivation for doing so would have been to obtain information of contamination due to organic vapors from resist coated wafers as taught by Kunz et al. (*Page 3330, left column, INTRODUCTION paragraph*).

2. Claims 12, 14, 16, 23, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toshihiko (JP 07153662) in view of Kunz et al., as applied to claims 11, 13, 17, 22 and 26, and further in view of Greinke et al. (US 5102855).

Toshihiko, as modified, discloses the claimed invention as discussed above except wherein the collection unit has an absorption agent such as an activated carbon.

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Greinke et al. teaches that activated carbon can be used for adsorption purposes such as the extraction of gases or vapors from products (*column 1, lines 15-20*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the collecting unit disclosed by Toshihiko to include activated carbon to absorb the out gas as disclosed by Greinke et al. as a common technique well known in the art.

### ***Response to Arguments***

Applicant's arguments filed 10/26/2005 have been fully considered but they are not persuasive.

The applicant argued that Toshihiko and Kunz do not teach “*fully irradiated*” defined by the applicant as “*the entire wafer is irradiated simultaneously by the electron beam*”. However, such definition is not included in the claims. In fact, “*said resist film is fully irradiated with said electron beam*” can be broadly interpreted as irradiating the electron beam with a “full” exposure dose that equals the resist’s sizing dose. Based on this interpretation, Kunz’s suggestion that “*The sample is irradiated to an exposure dose equal to the resist’s sizing dose*” (*Page 3330, right column, second paragraph*) reads on the claim language of the claimed invention.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN  
11/29/2005

  
HAI PHAM  
PRIMARY EXAMINER